IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of	: Customer Number: 20277
	:
Yoshihiko HIROTA, et al.	: Confirmation Number: 2255
	:
Serial No.: 09/263,805	: Group Art Unit: 2623
	:
Filed: March 08, 1999	: Examiner: WU, Jingge
	:

For: IMAGE PROCESSING APPARATUS, IMAGE FORMING APPARATUS AND COLOR
IMAGE DETERMINATION METHOD THEREOF

SUBSTITUTE APPEAL BRIEF

Honorable Commissioner for Patents

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P.O. Box 1450

FEB 2 7 2004

Alexandria, VA 22313-1450

Technology Center 2600

Sir:

This Appeal Brief is submitted in support of the Notice of Appeal of the final rejection of

claims 1, 2, 15, 22, 23, 29, 30, 52, 53 and 56, filed December 9, 2003.

I.   REAL PARTY IN INTEREST

The real party in interest is MINOLTA CO. LTD. (operating as KONICA MINOLTA HOLDINGS, INC. as of October 1, 2003).

II.   RELATED APPEALS AND INTERFERENCES

Appellants are unaware of any related appeals and interferences.

III.   STATUS OF CLAIMS

Claims 1, 2, 15, 22, 23, 29, 30, 35, 52, 53 and 56 are pending in this application, of which claim 35 is indicated allowable. Claims 1, 2, 15, 22, 23, 29, 30, 52, 53 and 56 have been finally rejected. It is from the final rejection of claims 1, 2, 15, 22, 23, 29, 30, 52, 53 and 56 that this Appeal has been taken.

IV.   STATUS OF AMENDMENTS

No amendment has been filed subsequent to the issuance of the Final Office Action dated June 11, 2003.

V.   SUMMARY OF THE INVENTION

In a conventional image forming apparatus, the time required for processing, power consumption and the like, differs greatly depending on whether or not an image to be reproduced

is a monochrome or color image. For that reason, the apparatus switches operation modes depending on whether the image is a monochrome or a color image. Such conventional image processing apparatus determines whether an image is a monochrome or color image by determining whether every pixel included in an image is a monochrome or color pixel and the number of pixels determined as color pixels is counted. If the ratio of the number of color pixels thus counted to the number of all pixels included in the image is higher than a predetermined threshold, then it is determined that the image is a color image. If it is determined as a color image, image formation is conducted in a color image mode. If not, image formation is obviously conducted in a monochrome image mode. Thus, an image is not determined as a color image just because at least one color pixel is included in an image.

However, sometimes a trace of a color on an inherent monochrome image is caused, for example, by a person's accidentally touching the image with a color ball paint pen. In such case, it is preferable to deal with the image as a monochrome image as a whole even if color pixels are included, more or less, therein.

Also, there are cases where a color pixel is included in an image read from a monochrome original depending on the aberration of an optical system for reading images. It is inappropriate to determine the image as a color image based on this situation.

Thus, since the conventional image processing apparatus basically determines an image based on the ratio of the number of color pixels to that of all of the color pixels in the image, a color image might be improperly determined as a monochrome image in the above cases.

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The present invention solves these problems in the conventional image processing apparatus as stated above. That is, the present invention provides an image processing apparatus which can ensure determining a color image as a color image even if the ratio of the number of color pixels to the number of entire pixels is low and which does not determine a monochrome image intended to be dealt with as a monochrome image, as a color image.

Claim 1 is presented below with elements read on the specification and drawings, as suggested in MPEP § 1206.

An image processing apparatus including:

a brightness data extracting section for extracting brightness data from image information of each pixel (12 FIG. 2, step S1 FIG. 6; page 24, line 12, page 30, lines 13-19);

means for determining a reference value based on extracted brightness data (44 FIG. 2, step S3 FIG. 6; page 24, line 19, page 31, line 6 to page 32, line 8);

a first determination means for determining whether or not a pixel included in an image is a color pixel by using the reference value (46 FIG. 2; page 24, lines 23-24, page 27, lines 4-10);

means for dividing the image into a predetermined number of a plurality of blocks (11 FIG. 2; page 24, lines 17-19);

counting means for counting the number of color pixels for each block (step S8 FIG. 6; page 33, line 23 to page 34, line 6); and

second determination means for determining whether or not the image is a color image based on the counting result by the counting means (steps S9, S10, S11 FIG. 6, as well as steps of FIGS. 7 and 8; page 34, line 13 through page 46, line 21.

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VI. ISSUE

A. The Rejection

Claims 1, 2, 15, 22, 23, 29, 30, 52, 53 and 56 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Koizumi [et al.] (USPN 5,287,204, filed on May 13, 199, and issued on February 15, 1994) in view of Goto (USPN 5,748,801, filed on December 16, 1996 and issued on May 5, 1998).

B. Issue

The Issue which arises in this Appeal and requires resolution by the Honorable Board of Patent Appeals and Interferences (Board) is whether claims 1, 2, 15, 22, 23, 29, 30, 52, 53 and 56 are unpatentable under 35 U.S.C. § 103 for obviousness predicated upon Koizumi [et al.] in view of Goto.

VII. GROUPING OF CLAIMS

Claims 1, 2, 15, 22, 23, 29, 30, 52, 53 stand or fall together as a group depending upon the patentability of independent claims 1, 52 and 56.

VIII. THE ARGUMENT

Regarding the rejection of claims 1, 2, 15, 22, 23, 29, 30, 52, 53 and 56 under 35 U.S.C. § 103(a) as being unpatentable over Koizumi [et al.] in view of Goto, the Examiner contends that Koizumi [et al.] discloses the claimed features, including using a predetermined L^* threshold to

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determined the color pixel. However, the Examiner admits that Koizumi [et al.] does not specifically mention the threshold is determined based on the extracted brightness. Goto is relied upon as disclosing, in an analogous environment, extracting the brightness and setting the threshold of color pixel based on the brightness. The Examiner contends that it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the scheme of Goto in the apparatus of Koizumi [et al.] in order to accurately and quickly determine the color image or monochromatic image, as doing so would increase the efficiency of the apparatus.

In imposing a rejection under 35 U.S.C. § 103, the Examiner is charged with the initial burden of identifying a source in the applied prior art for: (1) claim limitations; and (2) the requisite motivation to combine references with a reasonable expectation of achieving a specific result. *Smiths Industries Medical Systems v. Vital Signs*, 183 F.3d 1347, 51 USPQ2d 1415 (Fed. Cir. 1999).

Means for determining a reference value based on extracted brightness data, which is a characteristic feature of the present invention, is disclosed at page 36, lines 9-13 of the specification and in Fig. 12. According to embodiments of the present application, a reference value is determined by brightness data using a table that makes brightness data relate to threshold (reference value). From this aspect, it is apparent that determined brightness data itself univocally determines threshold.

On the other hand, as described at column 1, lines 11-19 of Goto, the reference relates to methods of setting threshold values for pixel values of an image when a particular region, such as bones or internal organs of a body to be examined, is extracted from a CT image and, in

particular, to a method of setting threshold values for extracting image data in which the set threshold values can be decided to be proper, or not, in real time. It is described that a region to be displayed in full-color and a region to be displayed in monochrome are classified by making comparison of luminance data with a threshold value.

However, in Goto, a threshold value is set by an operator with a mouse 6. For example, from column 5, line 54 to column 6 1ine of Goto, it is described that an operator can set an optimum threshold value *with the mouse 6* observing an image that changes on a display. That is, an operator can input an appropriate threshold value while judging whether or not a threshold value set for an image on the display is appropriate in real time.

Accordingly, Goto does **NOT** disclose "determination means for *determining a threshold value based on a value of brightness data*".

Furthermore, it is also well established in MPEP § 2143.01, last paragraph that the proposed modification cannot change the principle of operation of a reference. "If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teaching of the references are not sufficient to render the claims prima facie obvious." Clearly, the principle operation of a patent is limited by its claims; i.e., the claims delineate the metes and bounds of the invention.

Koizumi [et al.] specifically claims "...judging a pixel color of each pixel based upon the luminance data and the color difference data..." (see claim 1). There is no disclosure or suggestion about using extracted brightness data for determining a reference value for judging a pixel color of each pixel. As noted above, Goto does not disclose "determination means for

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determining a threshold value based on a value of brightness data". However, even if it were *presumed* that Goto discloses extracting the brightness and setting the threshold of color pixel based on the brightness, if Koizumi [et al.] were modified to use this (presumed) teaching of Goto, it would alter the invention that is claimed in Goto, which is not permitted.

Clearly, the only apparent motivation of record for the modification proposed by the Examiner to arrive at the claimed inventions is found in Appellants' disclosure which, of course, may not properly be relied upon to support the ultimate legal conclusion of obviousness under 35 U.S.C. § 103. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 227 1 USPQ2d 1593 (Fed. Cir. 1987).

It should, therefore, be apparent that the Examiner did not establish a *prima facie* basis to deny patentability to the claimed invention 35 U.S.C. § 103 for want of the requisite realistic motivational element and/or for want of the requisite factual basis. Thus, the conclusion appears inescapable that one having ordinary skill in the art would **not** have found the claimed invention **as a whole** obvious within the meaning of 35 U.S.C. § 103. *In re Piasecki*, 745 F.2d 1468, 223 USPQ 785 (Fed. Cir. 1984). Accordingly, reversal of the Examiner's rejection of claims 1, 2, 15, 22, 23, 29, 30, 52, 53 and 56 under 35 U.S.C. § 103 is respectfully solicited.

Conclusion

Based upon the foregoing, Appellants, therefore, submit that the imposed rejection of claims 1, 2, 15, 22, 23, 29, 30, 52, 53 and 56 under 35 U.S.C. § 103 as being unpatentable over

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Koizumi [et al.] in view of Goto should not be sustained as the Examiner has not established a *prima facie* case of obviousness.
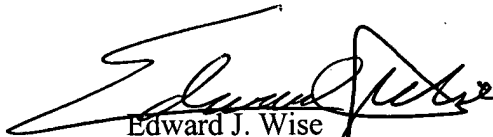
IX.   **PRAYER FOR RELIEF**

Based upon the above arguments, Appellants, therefore, respectfully submit that one having ordinary skill in the art would not have found the claimed invention as a whole obvious within the meaning of 35 U.S.C. § 103.   Consequently, Appellants respectfully solicit the Honorable Board to reverse the Examiner's rejection of claims 1, 2, 15, 22, 23, 29, 30, 52, 53 and 56 under 35 U.S.C. § 103 for obviousness predicated upon Koizumi [et al.] in view of Goto.

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To the extent necessary, a petition for an extension of time under 37 CFR § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account and please credit any excess fees to such deposit account.

Respectfully submitted,

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APPENDIX

1. An image processing apparatus including:

a brightness data extracting section for extracting brightness data from image information of each pixel;

means for determining a reference value based on extracted brightness data;

a first determination means for determining whether or not a pixel included in an image is a color pixel by using the reference value;

means for dividing the image into a predetermined number of a plurality of blocks;

counting means for counting the number of color pixels for each block; and

second determination means for determining whether or not the image is a color image based on the counting result by the counting means.

2. An image processing apparatus of claim 1 further including third determination means for determining whether or not said each block is a color block, respectively, based on the number of color pixels for each block, wherein the second determination means determines whether or not the image is a color image based on the determination result by the third determination means.

15. An image processing apparatus of claim 2, wherein

the third determination means determines a block as a color block in case the number of color pixels within a block exceeds a first threshold.

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22. An image processing apparatus of claim 2, wherein

the second determination means determines an image as a color image in case the number of color blocks included in the image exceeds a first threshold.

23. An image processing apparatus of claim 1, wherein

the second determination means determines an image as a color image in case a block having color pixels which exceeds a first threshold in number is discovered.

29. An image processing apparatus of claim 1, wherein the second determination means excludes a block on a certain portion from the determination.

30. An image processing apparatus of claim 29, wherein the certain portion includes peripheral portions of an image.

35. (Allowable) An image processing apparatus of claim 1, wherein the second determination means determines whether or not an image is a color image even if the numbers of color pixels for blocks are not completely counted, and the counting means for counting the number of color pixels for each block stops counting operation after the second determination means completes color image determination.

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52. An image forming apparatus including:

means for inputting an image;

a brightness data extracting section for extracting brightness data from image information of each pixel;

means for determining a reference value based on extracted brightness data;

a first determination means for determining whether or not a pixel included in the input image is a color pixel by using the reference value;

means for dividing the image into a predetermined number of a plurality of blocks;

counting means for counting the number of color pixels for each block;

second determination means for determining whether or not the image is a color image based on the counting result by the counting means; and

printing means performing color-printing in case the second determination means determines the image as a color image, and performing monochrome-printing in case the second determination means determines the image as a non-color image.

53. An image forming apparatus of claim 52, wherein the means for inputting an image is an image reader in which means of provisional scanning fetches the image for color image determination.

56. Color image determination method including:

a step of extracting brightness data from image information of each pixel;

a step of determining a reference value based on extracted brightness data;

a step of determining whether or not pixels included in an image are color pixels, respectively, by using the reference value;

step of dividing the image into a predetermined number of a plurality of blocks;

step of counting the number of color pixels for each block; and

step of determining whether the image is a color image based on the counting.

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Mail Stop Appeal Brief
Honorable Commissioner for Patents
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Alexandria, VA 22313-1450

Sir:

Submitted herewith in triplicate is Appellant(s) Substitute Appeal Brief in support of the Notice of Appeal filed December 9, 2003.

This Substitute Appeal Brief is filed to correct the content of claim 30 in the Appendix of claims attached to the Appeal Brief. In the Appeal Brief submitted February 9, 2004, claim 30 was recited as:

An image processing apparatus of claim 29, wherein the certain portion includes image folding portions on an original in the form of a book.

However, this was incorrect and was that which was recited in original claim 31, no longer pending in the present application. Consequently, this Substitute Appeal Brief is filed to correctly recite claim 30 as:
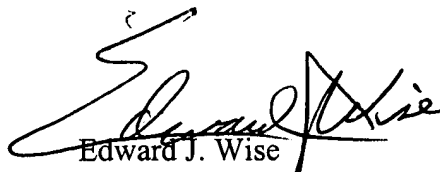
An image processing apparatus of claim 29, wherein the certain portion includes peripheral portions of an image.

Please charge any fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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